



## Pool Cover Project Forecast Methodology Parameters

September 2019

The following is a table of parameters to be used in the Pool Cover Project Forecast Methodology. The values in this table have been approved for use in this methodology by the Climate Action Reserve.

Equation / Section No.	Data / Parameter / Description	Unit	Country / Region	Default Value	Source
Section 2.1.2	<b>Eligible Pool Covers</b>	Make / Model of pool	Any	N/A	List documentation pertaining to each pool cover used in project and why they are suitable for inclusion in this methodology. For pool covers used in California, this may include evidence that such covers are of a type included in the SCG Model (see "Exhibit B SCG Pool Cover Work Paper"), and may also include product information from the pool cover manufacturer.
Section 2.1.3 Section 3.3.1 Section 3.3.2	<b>Eligible Project Areas</b>	States or regions	California	N/A	See "Exhibit A Performance Standard Test"
					List documentation used to demonstrate the area in question passes the Legal Requirement Test.
Section 5.1	<b>Quantification methodology and/or model</b>	N/A	California	N/A	SCG Model has been approved for use in California. See "Exhibit B SCG Pool Cover Work Paper"
			Other	N/A	List details of any other model approved under this method and reference documents used to demonstrate suitability of that quantification method / model under this methodology.
Equation 5.1	<b>EF</b> Fuel-specific emission factors provided in table below	tCO <sub>2</sub> -e/therm	California	Fuel specific – See EF table below	See separate table of accepted emission factors for fossil fuel consumption in the United States below this table.

*Please ensure that you are using the latest version of this document*

Equation / Section No.	Data / Parameter / Description	Unit	Country / Region	Default Value	Source
Equation 5.1	<b>Pool cover lifetime</b> Project specific value. List each specific pool cover approved under this method and relevant lifetime value.	years	California	Pool cover specific value. List each specific pool cover approved under this method and relevant lifetime value.	List documentation used to set the pool cover lifetime, pertaining to each pool cover used in project. Acceptable documentation may include information on pool cover warranties, information pertaining to other Project Resiliency Measures, or other suitable information.
Equation 5.4	<b>RR</b> Number of pool covers expected to require major repairs or replacement for each specific pool cover model.	Number	California	Pool cover specific value. List each specific pool cover approved under this method and relevant RR value.	List any documentation used to set the RR value, pertaining to each pool cover used in project. Acceptable documentation may include information provided directly by the pool cover manufacturer, statements from industry experts, or values documented in literature. If a value is set in agreement with the Reserve, in the absence of specific evidence, then simply list that value in the default column and provide a simple statement to that effect here.
Equation 5.4	<b>Rt</b> Time required for manufacturer to replace pool cover, for each specific pool cover model.	Number	California	Pool cover specific value. List each specific pool cover approved under this method and relevant Rt value.	List any documentation used to set the Rt value, pertaining to each pool cover used in project. Acceptable documentation may include information provided directly by the pool cover manufacturer, statements from industry experts, or values documented in literature. If a value is set in agreement with the Reserve, in the absence of specific evidence, then simply list that value in the default column and provide a simple statement to that effect here.
Equation 5.5	<b>NCD</b> Estimated number of days each year that pool covers not used properly.	Number	California	Pool cover specific value. List each specific pool cover approved under this method and relevant Rt value.	Acceptable documentation may include information provided directly by the pool cover manufacturer, statements from industry experts, or values documented in literature. If a value is set in agreement with the Reserve, in the absence of specific evidence, then simply list that value in the default column and provide a simple statement to that effect here.

## Emission Factor Tables

**Table B.1.** CO<sub>2</sub> Emission Factors for Fossil Fuel Use<sup>1</sup>

Fuel Type	Default High Heat Value		Default CO <sub>2</sub> Emission Factor	
	mmBtu/ short ton	kg CO <sub>2</sub> / mmBtu	kg CO <sub>2</sub> / short ton	
Coal and coke				
Anthracite	25.09	103.69	2601.582	
Bituminous	24.93	93.28	2325.470	
Subbituminous	17.25	97.17	1676.183	
Lignite	14.21	97.72	1388.601	
Coal Coke	24.8	113.67	2819.016	
Mixed (Commercial sector)	21.39	94.27	2016.435	
Mixed (Industrial coking)	26.28	93.9	2467.692	
Mixed (Industrial sector)	22.35	94.67	2115.875	
Mixed (Electric Power sector)	19.73	95.52	1884.610	
Natural gas	mmBtu/ scf	kg CO <sub>2</sub> / mmBtu	kg CO <sub>2</sub> / scf	
(Weighted U.S. Average)	0.001026	53.06	0.054	
Petroleum products	mmBtu/ gallon	kg CO <sub>2</sub> / mmBtu	kg CO <sub>2</sub> / gallon	
Distillate Fuel Oil No. 1	0.139	73.25	10.182	
Distillate Fuel Oil No. 2	0.138	73.96	10.206	
Distillate Fuel Oil No. 4	0.146	75.04	10.956	
Residual Fuel Oil No. 5	0.14	72.93	10.210	
Residual Fuel Oil No. 6	0.15	75.1	11.265	
Used Oil	0.138	74	10.212	
Kerosene	0.135	75.2	10.152	
Liquefied petroleum gases (LPG) <sup>1</sup>	0.092	61.71	5.677	
Propane <sup>1</sup>	0.091	62.87	5.721	
Propylene <sup>2</sup>	0.091	67.77	6.167	
Ethane <sup>1</sup>	0.068	59.6	4.053	
Ethanol	0.084	68.44	5.749	

<sup>1</sup> 40 CFR Part 98 Subpart C Table C-1: Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel.

Fuel Type	Default High Heat Value	Default CO <sub>2</sub> Emission Factor	
Ethylene <sup>2</sup>	0.058	65.96	3.826
Isobutane <sup>1</sup>	0.099	64.94	6.429
Isobutylene <sup>1</sup>	0.103	68.86	7.093
Butane <sup>1</sup>	0.103	64.77	6.671
Butylene <sup>1</sup>	0.105	68.72	7.216
Naphtha (<401 deg F)	0.125	68.02	8.503
Natural Gasoline	0.11	66.88	7.357
Other Oil (>401 deg F)	0.139	76.22	10.595
Pentanes Plus	0.11	70.02	7.702
Petrochemical Feedstocks	0.125	71.02	8.878
Petroleum Coke	0.143	102.41	14.645
Special Naphtha	0.125	72.34	9.043
Unfinished Oils	0.139	74.54	10.361
Heavy Gas Oils	0.148	74.92	11.088
Lubricants	0.144	74.27	10.695
Motor Gasoline	0.125	70.22	8.778
Aviation Gasoline	0.12	69.25	8.310
Kerosene-Type Jet Fuel	0.135	72.22	9.750
Asphalt and Road Oil	0.158	75.36	11.907
Crude Oil	0.138	74.54	10.287
Other fuels—solid	mmBtu/ short ton	kg CO <sub>2</sub> / mmBtu	kg CO <sub>2</sub> / short ton
Municipal Solid Waste	9.953	90.7	902.737
Tires	28	85.97	2407.160
Plastics	38	75	2850.000
Petroleum Coke	30	102.41	3072.300
Other fuels—gaseous	mmBtu/ scf	kg CO <sub>2</sub> / mmBtu	kg CO <sub>2</sub> / scf
Blast Furnace Gas	0.000092	274.32	0.025
Coke Oven Gas	0.000599	46.85	0.028
Propane Gas	0.002516	61.46	0.155
Fuel Gas <sup>4</sup>	0.001388	59	0.082
Biomass fuels—solid	mmBtu/ short ton	kg CO <sub>2</sub> / mmBtu	kg CO <sub>2</sub> / short ton
Wood and Wood Residuals (dry basis) <sup>5</sup>	17.48	93.8	1639.624

Fuel Type	Default High Heat Value	Default CO <sub>2</sub> Emission Factor	
Agricultural Byproducts	8.25	118.17	974.903
Peat	8	111.84	894.720
Solid Byproducts	10.39	105.51	1096.249
Biomass fuels—gaseous	mmBtu/ scf	kg CO <sub>2</sub> / mmBtu	kg CO <sub>2</sub> / scf
Landfill Gas	0.000485	52.07	0.025
Other Biomass Gases	0.000655	52.07	0.034
Biomass Fuels—Liquid	mmBtu/ gallon	kg CO <sub>2</sub> / mmBtu	kg CO <sub>2</sub> / gallon
Ethanol	0.084	68.44	5.749
Biodiesel (100%)	0.128	73.84	9.452
Rendered Animal Fat	0.125	71.06	8.883
Vegetable Oil	0.12	81.55	9.786

<sup>1</sup> The HHV for components of LPG determined at 60°F and saturation pressure with the exception of ethylene.

<sup>2</sup> Ethylene HHV determined at 41°F (5°C) and saturation pressure.

<sup>3</sup> Use of this default HHV is allowed only for: (a) Units that combust MSW, do not generate steam, and are allowed to use Tier 1; (b) units that derive no more than 10 percent of their annual heat input from MSW and/or tires; and (c) small batch incinerators that combust no more than 1,000 tons of MSW per year.

<sup>4</sup> Reporters subject to subpart X of this part that are complying with §98.243(d) or subpart Y of this part may only use the default HHV and the default CO<sub>2</sub> emission factor for fuel gas combustion under the conditions prescribed in §98.243(d)(2)(i) and (d)(2)(ii) and §98.252(a)(1) and (a)(2), respectively. Otherwise, reporters subject to subpart X or subpart Y shall use either Tier 3 (Equation C-5) or Tier 4.

<sup>5</sup> Use the following formula to calculate a wet basis HHV for use in Equation C-1:  $HHV^w = ((100 - M)/100) * HHV^d$  where  $HHV^w$  = wet basis HHV, M = moisture content (percent) and  $HHV^d$  = dry basis HHV from Table C-1.